

Claims

1. A thrust cap for an electric motor comprising:
 - a thrust cap body;
 - 5 a thrust bearing surface supported by the body; and securing means for securing the thrust cap body to the electric motor, said securing means including a plurality of snap fit fingers having tapered heads with shoulders for engaging an inner surface of a housing part of said motor; wherein the thrust bearing surface is sprung and arranged to be in continuous contact with a rounded end of a shaft of the motor spaced from the axial center so as to provide radial and axial force components and to urge the shaft axially away from the thrust bearing cap.
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2. The thrust cap of Claim 1, wherein, the thrust bearing surface is metallic.
- 15 3. The thrust cap of Claim 1, wherein, the thrust bearing surface is a part of the thrust cap body and the snap fit fingers are made from a single piece of resin material.
4. The thrust cap of Claim 1, wherein, the thrust bearing surface is formed by an arm extending from a spring member fixed to the thrust cap body and able to be resiliently deformed within a predetermined range by the shaft.
- 20 5. The thrust cap of Claim 1, wherein the thrust bearing surface is provided by a U-shaped spring fixed to the thrust cap body.
- 25 6. A miniature electric motor incorporating the thrust cap of Claim 1.
7. A thrust cap for a miniature electric motor having a housing and a shaft journalled in bearings supported by the housing and having a rounded first end located within a bearing retainer of the housing and a second end located outside of the housing, the thrust cap comprising:
 - a thrust cap body arranged to close an opening in the bearing retainer,
 - 30 means for securing the thrust cap body to the housing including a plurality of snap fit fingers extending from the thrust cap body, each finger having a tapered head with a shoulder adapted to engage an inner surface of the housing, and
 - 35 a thrust bearing surface formed as an arm extending from the thrust cap body and resiliently deformable within a predetermined range and arranged to continuously

contact the first end of the shaft at a location spaced from the axial center of the shaft to urge the shaft radially and axially away from the thrust cap.

8. A miniature electric motor comprising:

5 a housing having a stator and supporting two bearings in respective bearing retainers, each bearing retainer having an axial opening aligned with the bearings,

a shaft supporting a rotor, having a first end and a second end, the first end being rounded, the shaft being journaled in the bearings and with the first end located within the first bearing retainer of the housing adjacent the axial opening and the 10 second end located outside of the housing with the shaft passing through the axial opening of the second bearing retainer, and

15 a thrust cap fitted externally to the housing,

wherein the thrust cap has a thrust cap body which closes the axial opening of the first bearing retainer; a plurality of resiliently deformable fingers, each having a tapered head with a shoulder which engages an inner surface of the housing to form a snap fit securing means holding the thrust cap body to the housing; and a thrust bearing surface which is supported by and sprung with respect to the thrust cap body so as to make continuous contact with the rounded first end of the shaft at a location spaced from the axial center so as to urge the shaft radially and axially away from the 20 thrust cap.

9. The motor of Claim 8, wherein the thrust bearing surface of the thrust cap is formed by an arm integral with a U-shaped spring attached to the thrust cap body and resiliently deformable within a predetermined range.

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10. The motor of Claim 9, wherein the thrust bearing surface is metallic.

11. The motor of Claim 8, wherein the thrust cap body and the fingers are made from a single piece of resin material.

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